

CLAIMS

What is claimed is:

1. A system for testing communication between a first circuit board and a second circuit board, the system comprising:

a first functional signal path coupled between the first circuit board and the second circuit board for transmitting a first functional signal from the first circuit board to the second circuit board;

a test signal path coupled between the first circuit board and the second circuit board for exchanging test signals between the first circuit board to the second circuit board;

a first test control circuit in the first circuit board coupled to the test signal path and adapted to apply a test request signal to the test signal path; and

a second test control circuit in the second circuit board coupled to the first functional signal path and coupled to the test signal path and adapted to latch the present state of the signal on the first functional signal path for use within the second circuit board in response to receipt of the test request signal from the first circuit board.

2. The test system of claim 1 wherein the second test control circuit comprises:

a latch coupled to the functional signal path to latch the present state of the functional signal in response to receipt of the test request signal; and

control logic coupled to the selection signal input path adapted to selectively apply the latched present state of the functional signal for further use within the second circuit board.

3. The test system of claim 2 wherein the latch comprises a transparent latch and wherein the control logic is adapted to apply a select signal to the transparent latch to select the latched output signal of the transparent latch to be applied to the output of the transparent latch for use by the functional circuits of the second circuit board.

4. The system of claim 3 wherein the second test control circuit further comprises:

test logic to exchange signals with the first circuit board via the test signal path and the functional signal path to test the functional signal path while the transparent latch is selected to apply the latched present state of the functional signal to the output of the transparent latch.

5. The system of claim 1 wherein functional signal comprises a reset signal.

6. The system of claim 1 wherein the first and second circuit boards comprise redundant controllers.

7. The system of claim 1 wherein the first and second circuit boards comprise redundant storage controllers in a RAID storage subsystem.

8. A system for testing a cross-coupled signal pair coupled between a first circuit board and a second circuit board, the system comprising:

a first functional signal path of the cross-coupled signal pair for applying a first functional signal from the first circuit board to the second circuit board;

a second functional signal path of the cross-coupled signal pair for applying a second functional signal from the second circuit board to the first circuit board;

test signal means for exchanging test signals between the first and second circuit boards associated with testing the first functional signal path and associated with testing the second functional signal path;

first test control logic in the first circuit board coupled to the test signal means and coupled to the second functional signal path for latching the present state of the second functional signal within the first circuit board during testing of the second functional signal path; and

second test control logic in the second circuit board coupled to the test signal means and coupled to the first functional signal path for latching the present state of the first functional signal within the second circuit board during testing of the first functional signal path,

wherein the first test control logic is operable to latch the present state of the second functional signal in response to a test request signal received from the second test control logic through the test signal means, and

wherein the second test control logic is operable to latch the present state of the first functional signal in response to a test request signal received from the first test control logic through the test signal means.

9. The system of claim 8 where the first and second functional signals are reset signals

10. The system of claim 8 where the first and second functional signals are watchdog signals.

11. The system of claim 8 where the first and second circuit boards are a redundant pair of controllers.

12. The system of claim 11 where the controllers are RAID storage controllers.

13. The system of claim 8 where the test signal means comprises a test signal path for exchange of test signals.

14. The system of claim 8 wherein the test signal means comprises signal means coupled to the first functional signal path and coupled to the second functional signal path for exchanging test signals on the functional signal paths out of band.

15. The system of claim 14 where the out of band signals are modulated out of the band of modulated functional signals.

16. The system of claim 14 where the out of band signals are encoded out of the band of encoded functional signals.

17. A method for testing a cross-coupled signal pair coupled between a first and second circuit board, the method comprising the steps of:

applying a first test request signal from the first circuit board to the second circuit board wherein the first test request signal is out of band with respect to the cross-coupled signal pair;

latching within the second circuit board the present state of a first functional signal of the cross-coupled signal pair in response to detection of the first test request signal;

exchanging test signals between the first circuit board and the second circuit board to test the signal path for the first functional signal; and

using the latched present state of the first functional signal within the second circuit board during the exchange of test signals.

18. The method of claim 17 wherein the step of exchanging comprises exchanging the test signals over a test signal path coupled between the first circuit board and the second circuit board.

19. The method of claim 17 wherein the step of exchanging comprises modulating the test signals out of the normal band of modulation of the functional signals exchanged over the cross-coupled signal pair.

20. The method of claim 17 wherein the step of exchanging comprises encoding the test signals out of the normal band of encoding of the functional signals exchanged over the cross-coupled signal pair.